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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/849,864	YU ET AL.	
	Examiner	Art Unit	
	Katrina Fujita	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on ____.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-18 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
 5) Claim(s) ____ is/are allowed.
 6) Claim(s) 1-18 is/are rejected.
 7) Claim(s) ____ is/are objected to.
 8) Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 19 August 2004 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. ____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. ____ .
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)	5) <input type="checkbox"/> Notice of Informal Patent Application
Paper No(s)/Mail Date ____ .	6) <input type="checkbox"/> Other: ____ .

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

2. The disclosure is objected to because of the following informalities:

The first line of the specification does not include a sentence acknowledging applicant's claim for foreign priority. The examiner suggests amending the specification to include that information.

Appropriate correction is required.

Claim Suggestions

3. In claim 6, line 2, "a value is given by dividing discrete" should be changed to --a value is given by dividing a discrete--.

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4. In claim 7, line 3, "calculating average" should be changed to –calculating an average--.

5. In claim 14, line 3, "calculating average" should be changed to –calculating an average--.

6. In claim 15, line 12, "encoded using" should be changed to –encoded, using--.

7. In claim 18, line 3, "calculating average" should be changed to –calculating an average--.

Claim Objections

8. Claims 4, 5, 9, 11, 13, 16 and 17 are objected to because of the following informalities:

Claim 4 recites, "in each GOB (group of block)" in line 3. The uses of parenthesis in this instance is objected to for the following reasons. First, the use of parenthesis in a sentences is typically limited to the inclusion of unimportant, or superfluous information and unimportant, or superfluous information should not be recited in a patent claim with one exception. The MPEP, at paragraph 608.01(m) allows for the enclosure of reference numerals, corresponding to the figures, within parenthesis. However, in this case, the term "group of block" is not a reference numeral. It is suggested that applicant choose the most appropriate terms for inclusion in the

claim, and delete the other. Examiner will not give weight to "(group of block)" for purposes of examination. This also applies to claims 13 and 16.

Claim 5 recites, "discrete cosine transform (DCT)" in line 4. The uses of parenthesis in this instance is objected to for the following reasons. First, the use of parenthesis in a sentences is typically limited to the inclusion of unimportant, or superfluous information and unimportant, or superfluous information should not be recited in a patent claim with one exception. The MPEP, at paragraph 608.01(m) allows for the enclosure of reference numerals, corresponding to the figures, within parenthesis. However, in this case, the term "DCT" is not a reference numeral. It is suggested that applicant choose the most appropriate terms for inclusion in the claim, and delete the other. Examiner will not give weight to "(DCT)" for purposes of examination. This also applies to claims 11 and 17.

Claim 9 recites, "a variable length decoding (VLD)" in line 2. The uses of parenthesis in this instance is objected to for the following reasons. First, the use of parenthesis in a sentences is typically limited to the inclusion of unimportant, or superfluous information and unimportant, or superfluous information should not be recited in a patent claim with one exception. The MPEP, at paragraph 608.01(m) allows for the enclosure of reference numerals, corresponding to the figures, within parenthesis. However, in this case, the term "VLD" is not a reference numeral. It is suggested that applicant choose the most appropriate terms for inclusion in the claim, and delete the other. Examiner will not give weight to "(VLD)" for purposes of examination.

Appropriate correction is required.

9. The following is a quotation of 37 CFR 1.75(a):

The specification must conclude with a claim particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention or discovery.

10. Claims 15 and 16 are objected to under 37 CFR 1.75(a), as failing to particularly point out and distinctly claim the subject matter which application regards as his invention or discovery.

Claim 15 recites "the error frame information" in line 6. It is unclear whether this is intended to be the same as or different from the "error frame information" in line 2 or the "extracted error frame information" in line 3. The following will be assumed for examination purposes: --the extracted error frame information--.

Claim 15 recites "an error concealment" in line 7. It is unclear whether this is intended to be the same as or different from the "error concealment" in line 5. The following will be assumed for examination purposes: -- an the error concealment --.

Claim 15 lacks antecedent basis for "the hidden data" in line 8. The following will be assumed for examination purposes: -- the hidden data --.

Claim 15 recites "an error concealment" in line 13. It is unclear whether this is intended to be the same as or different from the "error concealment" in line 5 or the "error concealment" in line 7. The following will be assumed for examination purposes: -
- an error concealment at the decoder--.

Claim 16 lacks antecedent basis for "the extracted frame information" in line 1.

The following will be assumed for examination purposes: --the extracted error frame information--.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
- (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

12. Claims rejected under 35 U.S.C. 102(e) as being anticipated by Fukunaga et al. (US 6,683,988).

Claim Rejections - 35 USC § 103

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13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

14. Claim 1-4 rejected under 35 U.S.C. 103(a) as being unpatentable over Fukunaga et al. and common knowledge in the art.

Regarding **claim 1**, Fukunaga et al. discloses a video communication system (“picture transmission system” at col. 2, line 40) comprising a video encoder (“coding apparatus” at col. 4, line 12) and a video decoder (“decoding apparatus” at col. 5, line 42), wherein the video encoder includes:

a data hiding processing unit (figure 4, numeral 109) for performing a data hiding (“frame number is included in the end-of-modification information” at col. 5, line 40) to an error information (“decoding error signal specifies a frame number” at col. 4, line 62) provided from the video decoder (“receives decoding error signals from the decoding apparatus” at col. 4, line 61), and transmitting a processed error information (“end-of-modification information” at col. 5, line 39) to the video decoder, the processed error information having a hidden data (“frame number” at col. 5, line 40); and

a first error concealment processing unit (figure 4, numeral 107) for performing an error concealment (“replaces each designated block in frame N with the corresponding block from the preceding frame” at col. 5, line 6) with reference to the error information, and

wherein the video decoder includes:

a data extraction unit (figure 5, numeral 202) for extracting an information ('frame and block number' at col. 6, line 6) on an error frame ("frame and block number of the block in which the error occurred" at col. 6, line 6), providing the extracted frame information to the video encoder ("sends a decoding error signal to the coding apparatus" at col. 6, line 17), and a second data extraction unit (figure 5, numeral 208) extracting the hidden data ("decides which frame contained the error for which the modification was made" at col. 6, line 50) provided from the video encoder; and
a second error concealment processing unit (figure 5, numeral 206) for performing an error concealment ("replacing the block in which the error occurred" at col. 6, line 30) with reference to the extracted hidden data ("receives end-of-modification information from the end-information receiver" at col. 6, line 39).

Fukunaga et al. does not disclose that the data extraction unit and the second data extraction unit form a single unit.

It would have been obvious at the time the invention was made to one of ordinary skill in the art to combine together the decoding unit and the end-information receiving unit of Fukunaga et al. to enable a more efficient utilization of the decoder space.

Regarding **claim 2**, Fukunaga et al. discloses a video communication system wherein the processed error information is embedded into an encoded data ("frame number is included in the end-of-modification information" at col. 5, line 39) and transmitted from the data hiding processing unit (figure 4, numeral 109) to the video decoder ("decoding apparatus" at col. 5, line 42).

Regarding **claim 3**, Fukunaga et al. discloses a video communication system wherein the processed error information is a reference frame number (“frame number” at col. 5, line 29) of a frame that is encoded when the video encoder performs the error concealment (“frame that contained the error for which the modification was performed” at col. 5, line 30).

Regarding **claim 4**, Fukunaga et al. discloses a video communication system wherein the extracted frame information is an information (“error signal to report all of the erroneous blocks” at col. 6, line 24) that represents whether or not the error occurs in each GOB (“multiple blocks in the same frame” at col. 6, line 22).

15. Claims 9, 12, 13, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Fukunaga et al. and Khansari et al. (US 6,141,448).

Regarding **claim 9**, Fukunaga et al. discloses a video decoder (“decoding apparatus” at col. 13, line 56) comprising:

a decoding processing unit (figure 16, numeral 701) for receiving a compressed video stream (“coded moving-picture data” at col. 5, line 49) from a video encoder (“coding apparatus” at col. 14, line 48) and performing a decoding (“decoding operations” at col. 13, line 61);

a data extraction unit (figure 16, numeral 704) for extracting a hidden data (“copies the relevant blocks of the most recently modified frame” at col. 14, line 42) from

the decoded stream, the hidden data being transmitted (“transmit end-of-modification information” at col. 5, line 39) using a data hiding (“frame number is included in the end-of-modification information” at col. 5, line 40) from the video encoder, extracting an information (‘frame and block number’ at col. 6, line 6) on an error frame (“frame and block number of the block in which the error occurred” at col. 6, line 6), and providing the extracted frame information to the video encoder (“receives decoding error signals from the decoding apparatus” at col. 4, line 61); and

an error concealment processing unit (figure 16, numeral 702) for performing an error concealment (“error concealment” at col. 14, line 16) with reference to the extracted hidden data (“uses data stored in the concealed-error reference-picture memory 703 for reference” at col. 13, line 62).

Fukunaga et al. does not disclose that the decoding unit is a variable length decoding processing unit and that the decoding is a variable length decoding.

Khansari et al. discloses a video decoder (“decoder” at col. 13, line 50) comprising:

a variable length decoding processing unit (figure 14, numeral 520) for receiving a compressed video stream (“coded video stream” at col. 13, line 51) from a video encoder (“encoder” at col. 13, line 51) and performing a variable length decoding (“picture data decoded by variable length decoder” at col. 14, line 1).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to utilize the variable length decoder as taught by Khansari et al. to decode the video data of Fukunaga et al. to provide a unit “that it is simple and does not

require additional hardware or software to decode the overhead information" (Khansari et al., at col. 7, line 53).

Regarding **claim 12**, Fukunaga et al. discloses a video decoder wherein the hidden data extracted at the data extraction unit is a reference frame number ("frame number" at col. 5, line 29) of a frame that is encoded when the video encoder performs the error concealment ("frame that contained the error for which the modification was performed" at col. 5, line 30).

Regarding **claim 13**, Fukunaga et al. discloses a video decoder wherein the extracted frame information is an information ("error signal to report all of the erroneous blocks" at col. 6, line 24) that represents whether or not the error occurs in each GOB ("multiple blocks in the same frame" at col. 6, line 22).

Regarding **claim 15**, Fukunaga et al. discloses a video coding method ("each picture in the series being coded and decoded" at col. 2, line 42) comprising the steps of:

extracting an error frame information ('frame and block number" at col. 6, line 6) at a video decoder ("decoding apparatus" at col. 5, line 42) during a decoding and providing the extracted error frame information from the video decoder ("receives decoding error signals from the decoding apparatus" at col. 4, line 61) to a video encoder ("coding apparatus" at col. 4, line 12);

performing an error concealment ("replaces each designated block in frame N with the corresponding block from the preceding frame" at col. 5, line 6) at the video encoder with reference to the error frame information provided from the video decoder

(“receives a frame number (denoted by N below) and one or more block numbers” at col. 5, line 2), performing data hiding (“frame number is included in the end-of-modification information” at col. 5, line 40), using a reference frame (“reference-relationship memory 108 stores the information received from the coding unit 102, indicating which blocks in the preceding frame were used as reference blocks” at col. 5, line 22) in the error concealment, and transmitting (“passes this frame number to the coded-data transmission unit” at col. 5, line 37) hidden data (“frame number” at col. 5, line 40) to the video decoder; and

extracting the hidden data (“end-of-modification information is included with the received data, the coded-data receiving unit 201 supplies this information to the end-information receiving unit” at col. 5, line 53) transmitted from the video encoder at the video decoder, modifying (“modifies the picture data stored in the reference-picture memory” at col. 6, line 29) a reference frame (“reference frame” at col. 6, line 13) of a frame (“current frame” at col. 4, line 32) that is encoded (“coded moving-picture data” at col. 5, line 49) using the extracted hidden data (“replacing the block in which the error occurred with the corresponding block in the preceding frame” at col. 6, line 30), and performing an error concealment (“replacing the block in which the error occurred” at col. 6, line 30) at the decoder.

Fukunaga et al. does not disclose performing data hiding to the reference frame.

Khansari et al. discloses a video coding method (“error correction method which is compatible with block-based coding standards” at col. 1, line 12) comprising performing data hiding (“PICTURE/GOB DATA stored in buffer 440 is used by erasure

slice constructor 480 to construct the ERASURE SLICE" at col. 13, line 44) to a reference frame ("erasure slice" at col. 9, line 11).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to utilize the slice constructor as taught by Khansari et al. to hide data in the reference frame of Fukunaga et al. to provide a unit wherein the "amount of overhead and delay generated to reconstruct lost information is minimal" (Khansari et al., at col. 7, line 58).

Regarding **claim 16**, Fukunaga et al. discloses a video decoder wherein the extracted frame information is an information ("error signal to report all of the erroneous blocks" at col. 6, line 24) that represents whether or not the error occurs in each GOB ("multiple blocks in the same frame" at col. 6, line 22).

16. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Fukunaga et al. and common knowledge in the art as applied to claim 1 above, and further in view of Lin et al. (US 2002/0141502).

Regarding **claim 5**, the combination of Fukunaga et al. and common knowledge in the art disclose the elements of claim 1 as described in the 103 rejection above.

The combination of Fukunaga et al. and common knowledge in the art does not disclose that the video encoder performs the data hiding using a quantization parameter with respect to an encoding video image or a level value of a block to which a discrete cosine transform is performed.

Lin et al. discloses a video coding method wherein the video encoder (“compressor” at paragraph 0029, line 1) performs the data hiding (“introduce the error-detection information into the bitstream” at paragraph 0031, line 2) using a quantization parameter (“Q_SCALE” at paragraph 0030, line 2) with respect to an encoding video image or a level value (“quantized DCT coefficients” at paragraph 0031, line 1) of a block (“each block” at paragraph 0028, line 1) to which a discrete cosine transform (“discrete cosine transform” at paragraph 0029, line 3) is performed.

It would have been obvious at the time the invention was made to one of ordinary skill in the art to utilize the quantization parameter and level value as taught by Lin et al. to hide the error data of the combination of Fukunaga et al. and common knowledge in the art to provide an encoder that “improves the compression ratio” (Lin et al., at paragraph 0030, line 8).

Regarding **claim 6**, Lin et al. discloses that the level value is a value is given by dividing discrete cosine coefficient by the quantization parameter (figure 3, numeral 126).

17. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Fukunaga et al. and common knowledge in the art as applied to claim 1 above, and further in view of Bannon et al. (US 6,272,253).

Regarding **claim 7**, the combination of Fukunaga et al. and common knowledge in the art discloses the elements of claim 1 as described in the 103 rejection above.

The combination of Fukunaga et al. and common knowledge in the art does not disclose that the error concealment is performed by calculating average of motion vectors of blocks surrounding an error block and performing motion compensation to a reference frame.

Bannon et al. discloses a video communication system ("digital communication and storage systems with compressed video" at col. 1, line 6) wherein error concealment ("Error Concealment" at col. 9, line 62) is performed by calculating average of motion vectors of blocks ("Average the motion vectors over all macroblocks within the region" at col. 9, line 56) surrounding an error block ("error is detected in the motion vector data" at col. 18, line 22) and performing motion compensation ("motion compensation techniques" at col. 10, line 4) to a reference frame ("previous reconstructed frame" at col. 9, line 21).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to utilize the motion estimation and compensation as taught by Bannon et al. to conceal the error data of the combination of Fukunaga et al. and common knowledge in the art to provide a result with "good approximation and help reduce visual distortion significantly" (Bannon et al., at col. 18, line 29).

Regarding **claim 8**, Bannon et al. discloses a video communication system wherein the surrounding blocks ("each 16 by 16 macroblock in F_N which corresponds to a macroblock indicated by the bit map to be within the region" at col. 9, line 18) for obtaining the average of the motion vectors are upper and lower blocks (upper and

lower blocks of the search area which “extends 15 pixels in all directions” at col. 9, line 29) of a block in which the error occurs.

18. Claims 10, 11 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Fukunaga et al. and Khansari et al. as applied to claims 9 and 15 above, and further in view of Lin et al.

Regarding **claim 10**, the combination of Fukunaga et al. and Khansari et al. discloses the elements of claim 9 as described in the 103 rejection above.

The combination of Fukunaga et al. and Khansari et al. does not disclose that the hidden data is extracted during an inverse quantization.

Lin et al. discloses a video decoder (“MPEG decoder” at paragraph 0068, line 1) wherein the hidden data (“constraints” at paragraph 0071, line 2) is extracted during an inverse quantization (“de-quantification process” at paragraph 0071, line 8).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to utilize the constraint checker as taught by Lin et al. to extract the hidden data of the combination of Fukunaga et al. and Khansari et al. to provide “Error detection that does not significantly increase the amount of data that is transmitted in the bitstream” (Lin et al., at paragraph 0014, line 3).

Regarding **claims 11 and 17**, the combination of Fukunaga et al. and Khansari et al. discloses the elements of claims 9 and 15 as described in the 103 rejections above.

The combination of Fukunaga et al. and Khansari et al. does not disclose that wherein the video encoder performs the data hiding using a quantization parameter with respect to an encoding video image and/or a level value of a block to which a discrete cosine transform is performed.

Lin et al. discloses a video coding method wherein the video encoder (“compressor” at paragraph 0029, line 1) performs the data hiding (“introduce the error-detection information into the bitstream” at paragraph 0031, line 2) using a quantization parameter (“Q_SCALE” at paragraph 0030, line 2) with respect to an encoding video image or a level value (“quantized DCT coefficients” at paragraph 0031, line 1) of a block (“each block” at paragraph 0028, line 1) to which a discrete cosine transform (“discrete cosine transform” at paragraph 0029, line 3) is performed.

It would have been obvious at the time the invention was made to one of ordinary skill in the art to utilize the quantization parameter and level value as taught by Lin et al. to hide the error data of the combination of Fukunaga et al. and Khansari et al. to provide an encoder that “improves the compression ratio” (Lin et al., at paragraph 0030, line 8).

19. Claims 14 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Fukunaga et al. and Khansari et al. as applied to claims 9 and 15 above, and further in view of Bannon et al.

The combination of Fukunaga et al. and Khansari et al. discloses the elements of claims 9 and 15 as described in the 103 rejections above.

The combination of Fukunaga et al. and Khansari et al. does not disclose that the error concealment is performed by calculating average of motion vectors of blocks surrounding an error block and performing motion compensation to a reference frame.

Bannon et al. discloses a video communication system (“digital communication and storage systems with compressed video” at col. 1, line 6) wherein error concealment (“Error Concealment” at col. 9, line 62) is performed by calculating average of motion vectors of blocks (“Average the motion vectors over all macroblocks within the region” at col. 9, line 56) surrounding an error block (“error is detected in the motion vector data” at col. 18, line 22) and performing motion compensation (“motion compensation techniques” at col. 10, line 4) to a reference frame (“previous reconstructed frame” at col. 9, line 21).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to utilize the motion estimation and compensation as taught by Bannon et al. to conceal the error data of the combination of Fukunaga et al. and Khansari et al. to provide a result with “good approximation and help reduce visual distortion significantly” (Bannon et al., at col. 18, line 29).

Conclusion

20. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 7,133,455 is pertinent as disclosing a video coding system with error concealment.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katrina Fujita whose telephone number is (571) 270-1574. The examiner can normally be reached on M-Th 8-5:30pm, F 8-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian P. Werner can be reached on (571) 272-7401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Katrina Fujita

Art Unit: 2624

Art Unit 2624

/Brian P. Werner/

Supervisory Patent Examiner (SPE), Art Unit 2624